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a shaft connected to the head, the connection arranged so that the shaft forms a non-zero lean angle with the vertical when the head rests on its sole, the connection being substantially parallel to the shaft.

### Remarks

Claims 1-19 and 21-28 are pending in the application. Claims 4, 11, 13, and 24 stand withdrawn due to a species election requirement. Claims 1-3, 5-10, 14-19, 21-23, and 25-28 are rejected. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant thanks Examiner Blau for his careful consideration of the case and his acknowledgment that claim 12 is allowable if rewritten to include all of the limitations of its base claim and any intervening claims. In this response, claims 1-3, 5-10, 14-19, 21-23, and 25-28 have been cancelled, claims 29-55 have been added, and claim 12 has been rewritten in independent form including all of the limitations of the base claim 1 and the intervening claims 2, 9, and 10. Applicant respectfully submits that these amendments and the following Remarks remove all grounds for rejection of the application, thereby placing it in condition for allowance.

#### Rejections under 35 U.S.C. § 103(a):

Claims 1-3, 5-10, 14-16, 21-23, and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Muldoon in view of Hoefflich and Lynch. Claims 2-3, 5-10, 14-19, 21-23, and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Muldoon in view of Hansen. Claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Muldoon in view of Schmoll. Claims 26-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Duclos in view of Lynch.

Applicant respectfully points out that claims 1-3, 5-10, 14-19, 21-23, and 25-28 have been cancelled. Cancellation of claims 1-3, 5-10, 14-19, 21-23, and 25-28 obviates these rejections. Cancellation of claims 1-3, 5-10, 14-19, 21-23, and 25-28 is without prejudice, without intent to abandon any original claimed subject matter, and without intent to acquiesce in any rejection of record. Applicant reserves the right to file one or more continuing applications hereof containing these cancelled claims.

New claims:

Claims 29-55 have been added to more distinctly point out and claim the present invention. Applicant submits that no new matter has been presented by the addition of these new claims and that support for these new claims can be found throughout the specification and claims as originally filed. Applicant further submits that new claims 29-55 are allowable over the cited art.

The rejections under 35 U.S.C. § 103(a) submitted by the Examiner are based on Muldoon or Duclos, each in view of further references. Muldoon is directed to an apparatus for measuring the angle of a golf club shaft in address position, and to a vise for *bending* the hosel of a golf club. Duclos is directed to a measurement device for determining the loft and lie of a club as it is held in address position by a golfer. Variances between the desired loft and lie and the actual lie and loft can be corrected either by correcting the stance of the golfer or by *bending* the hosel of the golf club slightly.

New independent claims 29 and 44 relate to a method of constructing and to a method of designing a golf club with a non-zero lean angle, respectively. The non-zero lean angle is chosen based on a series of design steps that include determining the effective loft achieved when a particular golfer swings a test club. Generally, the non-zero lean angle is chosen such that a desired effective loft will be achieved when the designed golf club is swung by the particular golfer. The golf club is only constructed once the design steps have been completed and the non-zero lean angle has been chosen. ①

Muldoon and Duclos describe methods of designing a golf club for a golfer that involve determining a desired lean angle for an existing golf club based on the static address position of the golfer as he or she holds the existing golf club. Muldoon and Duclos both also describe methods that involve bending the hosel of the existing golf club in order to obtain the desired lean angle for the golfer. There is no suggestion in Muldoon and Duclos (nor in any of the other cited references) of a method of designing a golf club with a non-zero lean angle that involves the design steps described in the previous paragraph; nor is there any suggestion of a method of constructing a golf club with a non-zero lean angle that involves choosing the desired non-zero lean angle for the golf club *prior to* constructing the golf club. J

New independent claims 50, 51, 53, and 54 further specify various novel structural

aspects of the inventive golf club. Casting or forging the golf club head appropriately at the time of manufacture instead of bending the golf club hosel *after* the head has been cast or forged allows the structural integrity (e.g., tensile strength) of the golf club head to be preserved (claim 50). Constructing the golf club head appropriately at the time of manufacture allows lean angles greater than 3 degrees to be obtained (claim 51); ensures that the center of mass of the golf club is located in its manufactured and intended position (claim 53); and ensures that the connection between the golf club shaft and head remains parallel to the shaft. By contrast, bending the golf club hosel of an existing club as described in Muldoon and Duclos weakens the golf club head; limits the range of lean angles that can be obtained without breaking the golf club; displaces the center of mass of the golf club from its designed position; and distorts the connection between the golf club shaft and golf club head.

New attorney docket number:

The attorney docket number for this Application has changed. Applicant would be grateful for the entry of the new docket number, 2002832-0002, in the Patent Office system.


As required, attached hereto is a marked-up version of the changes made to the specification and claims by the current Amendment. The attached page is captioned "Version with markings to show changes made". For the Examiner's convenience, also attached hereto is an Appendix showing all pending claims as amended remaining in this application.

**Conclusion**

Based on the arguments presented above, it is submitted that the pending claims, as amended herein, are allowable over the art of record. Applicant requests that, upon receipt of the present Response to Office Action, the Examiner please contact the undersigned at (617) 248-5175 so that a telephone or in person interview may be arranged. Applicant would also like to thank the Examiner for his thoughtful comments and careful consideration of the case.

Please charge any fees that may be required, or credit any overpayment, to our Deposit Account No. 03-1721.

Respectfully submitted,

  
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Version with markings to show changes made

In the claims:

Claims 1-3 and 5-10 have been cancelled.

Claim 12 has been amended as follows:

12. (Amended) ~~The A~~ method of ~~claim 10~~, constructing a golf club for a golfer, comprising steps of:

determining a design loft of the club;

determining a length, lie, and offset of the club;

determining a swing characteristic of the golfer;

using the swing characteristic, at least in part, to determine a lean angle such that the effective loft for the golfer has a predetermined relationship to the design loft; and

constructing a club having the determined design loft and lean angle, the club being a wood, an iron, or a wedge;

wherein the lean angle is determined, at least in part, by at least one of the length, lie, and offset of the club;

wherein determining the lean angle and constructing the club are repeated for a plurality of golf clubs;

wherein determining the lean angle includes a step of correlating across the plurality of clubs a swing characteristic selected from the group consisting of:

a location of the hands of the golfer upon impact of a club with a golf ball;

an effective loft of a club for the golfer;

a relative difference between design loft and effective loft of a club for the golfer;

a location of the golf ball in the stance of the golfer when the golfer addresses a golf ball;

a location of the hands of the golfer when the golfer addresses a golf ball; and

a location of the hands of the golfer with respect to a location of a golf ball in the stance of the golfer when the golfer addresses a golf ball; and

wherein the correlating step includes locating the golf ball progressively backward in the golfer's stance, away from the target, for increasingly longer clubs in the plurality of clubs.

Claims 14-19, 21-23, and 25-28 have been cancelled.

Claims 29-55 have been added.